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Xiuquan Mei

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EXAMINER

MINSKEY, JACOB T

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/583,763	Applicant(s) MEI ET AL.	
	Examiner JACOB T. MINSKEY	Art Unit 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12-14-2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. The Examiner acknowledges the cancellation of claims 1-11 and the addition of new claims 12-23.
2. The Examiner withdrawn the previous objections and 112 rejections of claims 1-11 based on the presentation of new claims that due not include the same informalities.
3. Applicant's arguments with respect to claims 12-23 have been considered but are moot in view of the new ground(s) of rejection.
4. Applicant argues that the Goodell reference does not anticipate the new claims because Goodell relies on the use of hydroxyl radicals from the Fenton reagent, and not a hydrogen peroxide radical as claimed for active oxygen A.
5. In this regards the Examiner respectfully disagrees. The current claim language for active oxygen A states "is a free radical generated from one or two of O₂ and H₂O₂." As Applicant has pointed out, the hydroxyl radical of the Fenton reagent is produced from the reaction of H₂O₂ + Fe²⁺. The hydroxyl radical is then a radical generated form H₂O₂, as claimed in the claim language.
6. Applicant further argues that the current invention utilizes the free radicals "without oxidizing cellulose in the plant, to product pulp."
7. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., not oxidizing the cellulose) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are

Art Unit: 1791

not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). This reasoning by the Examiner also stands in response to the arguments about the degrading of benzene rings and selectively oxidizing the pi bonds.

8. Applicant further argues that Goodell fails to teach the limitation of the preparation of a pulp. In this regards, the Examiner wishes to states that the production of a pulp is not present in the claims. The preamble states that the claimed method is for a pulping process, but nothing is ever mentioned about the final product being a pulp.

9. Applicant furthers this argument by stating that the current application provides unexpected results over the Goodell reference. There are not facts to support this statement, only mere conclusions. MPEP 716.01 (c) states that “objective evidence which must be factually supported by an appropriate affidavit or declaration to be of probative value includes evidence of unexpected results, commercial success, solution of a long-felt need, inoperability of the prior art, invention before the date of the reference, and allegations that the author(s) of the prior art derived the disclosed subject matter from the applicant. See, for example, *In re De Blauwe*, 736 F.2d 699, 705, 222 USPQ 191, 196 (Fed. Cir. 1984).”

10. The same section of the MPEP further states:

a. “The arguments of counsel cannot take the place of evidence in the record. *In re Schulze*, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965). Examples of attorney statements which are not evidence and which must be supported by an appropriate affidavit or declaration include statements regarding

Art Unit: 1791

unexpected results, commercial success, solution of a long-felt need, inoperability of the prior art, invention before the date of the reference, and allegations that the author(s) of the prior art derived the disclosed subject matter from the applicant.”

11. Applicant further argues that the '960 patent utilized in an obviousness rejection on claim 10 fails to teach the combination of treating the raw material with both types of active oxygen.

12. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

13. The '960 references is utilized in a 103 rejection to show that the water recovery system is known in the same field of endeavor, not in showing the use of the different types of active oxygen radicals. It is the combination of the references that is utilized in the rejection of claim 10.

14. Rejections on the new claims are presented in the following sections.

Claim Rejections - 35 USC § 102

15. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Art Unit: 1791

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

16. Claim 12 is rejected under 35 U.S.C. 102(b) as being anticipated by Stigsson, WO 00/47812.

17. Regarding claim 12, Stigsson teaches a method of preparing a clean, fully closed, zero discharging pulping process by oxidation (see abstract and claim 1), wherein raw materials are non-wood or wood materials (inherent, every material is either wood or non wood, see also page 7), and the process comprises: pretreatment of the raw material (impregnation, figure 1 and page 9 section a on material preparation); oxidizing dipping the pretreated material in the presence of active oxygen A (hydroxyl radical, from hydrogen peroxide, see page 20) and a cellulose protectant consisting of metal ions and metal ions ligands (page 20); the materials treated above are ground in the presence of active oxygen A and active oxygen B (Stigsson teaches that the refining of the pulp is done at multiple points in the pulping process, including after the introduction of the active oxygen, see claim 1 steps c and d); concentrating and beating (inherent/implicit to the pulping process); wherein the active oxygen A is a free radical generated from one or two of O₂ and H₂O₂ (page 20, see arguments above); the active oxygen B is one or more of a group that consists O₃, singlet oxygen and superoxide anion radical (page 20, super oxide anion radical).

Claim Rejections - 35 USC § 102/103

18. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Art Unit: 1791

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

19. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

20. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

21. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Art Unit: 1791

22. Claims 12-15 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Goodell et al, US Patent Publication 2003/0186036 (as referenced by Stigsson, WO 00/47812).

23. Regarding claim 12, Goodell teaches pulping lignocelluloses material composites that contain both wood and non-wood [0114-0119] in a process that includes pretreatment of raw materials with a hydrogen peroxide based radical (see arguments above) [0003 and 0023 and 0103], metal ions (iron, see abstract and [0022 and 0058 and 0095]), metal ion ligands (the Examiner is understanding this to read on chelating agents like EDTA [0021]), and ozone ([0103], which reads on the limitation of active oxygen B); then refining the pulp with both types of active oxygen present in a disc refiner [0162], and finally concentrating and beating the pulp (these are inherent properties to the pulping process to utilize the pulp for the desired end product, also taught as vacuum blowing and pressing in the methods provided by examples).

24. In the alternative, if Applicant wishes to view Goodell's teaching of treating a pulp instead of a raw material (and if the argument is that a raw material is the raw chip form) prior to any physical mastication, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the treatment as taught by Goodell to a pretreatment process of the chips prior to mastication and refining. One would have looked at the examples (see example 2) and decided that treating the raw chips prior to and pulping action would have eased the pulping process and would be beneficial to the process and the end product. The pretreatment of raw material is known in the prior art

Art Unit: 1791

as referenced by Stigsson (WO 00/47812), who shows in figure 1 a pretreatment using the same chemicals and steps prior to the refining of the pulp to the finished product.

25. Regarding claims 13 and 14, Goodell further teaches that non-wood and wood materials are utilized [0114-0119].

26. Regarding claim 15, Goodell further teaches that the metal ion is Fe II+ [0195] and EDTA as the ligand [0021].

27. Claim 23 is rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Goodell et al, US Patent Publication 2003/0186036.

28. Regarding claim 23, this claim is a product by process claim, see MPEP § 2113. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself (i.e., differences in product characteristics), and not on its method of production. In the present instance, all that is claimed is a pulp, which is shown by Goodell [0118].

29. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Claim Rejections - 35 USC § 103

30. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

31. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

- b. Determining the scope and contents of the prior art.
- c. Ascertaining the differences between the prior art and the claims at issue.
- d. Resolving the level of ordinary skill in the pertinent art.
- e. Considering objective evidence present in the application indicating obviousness or nonobviousness.

32. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Art Unit: 1791

33. Claims 17-20 rejected under 35 U.S.C. 103(a) as being unpatentable over Goodell et al, US Patent Publication 2003/0186036 as referenced by Stigsson, WO 00/47812.

34. Regarding claims 16-21, Goodell further teaches that the pH is held between 1-4 ([0106] teaches 1-6 preferably 4.5) and provides molar ratios of additive agents to oxygen materials and additives to pulp, but does not provide details in the same unit or explicitly in the same manner as the instant application.

35. Goodell explicitly teaches that "the concentration of oxygen in the environment may be adjusted to control the production of free-radicals" [0103]. The teachings of Goodell that the pH of the system is important and the ratio of oxidizing materials to other additives and total amount of material in the pulp would have motivated one of ordinary skill in the art to optimize these variables because it has been held that determining the optimum range of relevant process parameters through routine experimentation and knowledge requires only routine skill in the art (In re Aller, USPQ 233, SSPA 1955).

36. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Goodell et al, US Patent Publication 2003/0186036 (as referenced by Stigsson, WO 00/47812) in view of Nimz et al, USP 5,074,960.

37. Regarding claim 22, Goodell remains as applied in claim 12 teaching the use of a disc refiner (step A) in the pulping process (step B), but does not detail a water purifying and recirculation system to be used in the process, only a sludge recycling system (Table 1).

Art Unit: 1791

38. In the same field of endeavor of utilizing ozone and oxygen based treatments in the pulping method, Nimz teaches purifying and recirculating the processing liquid (see abstract and column 6 lines 39-50). It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize a fluid clarification and recirculation system for the benefit of recovering chemicals and reduce material consumption as well as improving environmental concerns for the plant (see arguments above).

Conclusion

39. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JACOB T. MINSKEY whose telephone number is

Art Unit: 1791

(571)270-7003. The examiner can normally be reached on Monday to Friday 7:30-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Steven P. Griffin/
Supervisory Patent Examiner, Art
Unit 1791

JTM